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Original Research Article

Comparative study of episiotomy repair: absorbable synthetic versus chromic catgut suture material

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ABSTRACT

Background: The choice of suture material for repair of episiotomy or perineal laceration is largely of one's personal preference. Chromic catgut was widely used in most institutions. It now appears that chromic catgut is associated with more postpartum discomfort and hence chromic catgut has been largely replaced by synthetic absorbable materials like polyglactin and polyglycolic acid.
Methods: The study was conducted in Institute of Social Obstetrics and Government Kasturba Gandhi Hospital, Chennai. This is a prospective, comparative study involving two groups. The use of a rapidly absorbing form of synthetic absorbable suture material, in the repair of episiotomy or perineal laceration in 100 patients during the study period February 2012 to July 2012, were simultaneously compared with the traditional natural absorbable suture material.
Results: With the use of rapidly absorbing polyglactin 910, there was a significant reduction (p=0.000) in the short-term pain, 19 compared to 80 in the control group. With regard to wound dehiscence and the need for resuturing, there was statistically significant difference in the control group (15%) compared to the study group (0%). There was no statistical significance between the two groups in terms of dyspareunia (12.4% vs 10.7%).
Conclusions: Fast-absorbing form of Polyglactin seems to be effective in reducing some of the morbidity associated with perineal repair following childbirth. There was significant reduction in the short-term pain and the need for analgesia. The incidence of wound dehiscence was markedly reduced.

Keywords: Episiotomy, Polygalactin, Vicryl rapide

INTRODUCTION

Perineal trauma is the most commonly encountered surgery in the day-to-day practice of an obstetrician. The first surgical opening of the perineum in order to prevent severe perineal tear was suggested by Ould, in 1741. Perineal trauma affects the physical, mental and social well-being of the mother in her peurperium. A large proportion of women suffer short term perineal pain and up to 20% have long term problems like dyspareunia.[1] Other complications involve removal of retained suture material, wound dehiscence and re-suturing.[2] Although the use of episiotomy remains a controversial topic in obstetrics, when it is done, it has to be repaired with an ideal suture material. The search for an ideal suture material continues for decades. Ours, being a developing country with poor resources, chromic catgut is being used in most of our government institutions. Use of materials of natural origin is associated with a more pronounced tissue reaction than that caused by synthetic materials. Studies have shown synthetic suture materials like polyglactin to have less post-natal morbidity compared to

catgut but with the risk of increased need for suture removal.[3,4] This was addressed by irradiated polyglactin which gets absorbed rapidly than the standard polyglactin. The aim of our study is to compare the effect of two different suture materials- chromic catgut and rapidly absorbable polyglactin in the repair of episiotomy and its postpartum morbidity. Objective of present study was to compare absorbable synthetic sutures with chromic catgut sutures for episiotomy repair with respect to pain, analgesic requirement, wound dehiscense, removal of residual suture material, long term pain and superficial dyspareunia. Primary objective was whether the synthetic absorbable suture material is better than the natural absorbable suture material in relieving the postpartum morbidity associated with episiotomy or perineal laceration repair.

Primary outcome

- Early short term pain (up to 48 hrs)
- Late short term pain (up to 7 days)
- Use of Analgesia

Secondary outcome

- Long term pain
- Nature of wound healing
- Need for re-suturing
- Removal of unabsorbed suture material

METHODS

This is a prospective, comparative study involving two groups of patients selected randomly as per the inclusion criteria. Each group will have 100 women.

- Polyglactin 910 (Fast-absorbing)-group I
- Chromic catgut-group II

All women in the reproductive age group, attending the Government Kasturba Gandhi Hospital, who had a normal vaginal delivery, requiring an episiotomy or had a second degree perineal tear, were eligible to enter the trail. Enrolment took place immediately after delivery, after taking their consent. All episiotomies were repaired using the same technique: single continuous sub-cuticular perineal sutures, by the post-graduates. Mothers were interviewed at 48hrs, 7days, 15days, 6 and 12 weeks regarding perineal pain perception, analgesic requirement and dysparuenia. Local examination was done for nature of healing. All women were routinely put on analgesic T. Diclofenac sodium 50 mg 6 hourly and antibiotic C. Amoxicillin 500 mg 6 hourly for 5days.

From 1st February to 31st July 2012, 200 women were recruited into the trail and all of them completed follow up at six and twelve weeks. All patients were interviewed and examined at 48 hours and 7 days. Perineal pain was assessed by patients registering their pain perception on a visual analogue scale. At six weeks, patients were reviewed for any wound dehiscence, infection and residual suture material.

At twelve weeks, patients were called over the phone and enquired regarding the resumption of sexual activity and the difficulties encountered with it.

Inclusion criteria

- All patients with an elective episiotomy
- Second degree perineal laceration.

Exclusion criteria

- Episiotomy incisions extended by instrumental deliveries
- Severe anemia
- Diabetes mellitus
- On drugs like steroids and immunosuppressant
- Epidural labor analgesia
- Women whose membranes had ruptured for >24hrs
- Patients with foul smelling vaginal discharge.

Statistical analysis

Descriptive statistics were utilized and all results are presented in terms of percentages. Categorical data were compared using Chi Square Test or Fischer's Exact Test if appropriate. Statistical significance was $p<0.05$.

RESULTS

This study commenced with 100 women in each group who underwent episiotomy or perineal laceration repair. In our study, all the perineal repairs were performed under local anesthesia by the post graduates in the labor ward.

Pain at 48 hours

80.2% of the patients of the study group had moderate pain when compared to 19.8% in the study group. 80.8% of patients with severe pain were in the control group whereas only 19.2% of the study group had severe pain.

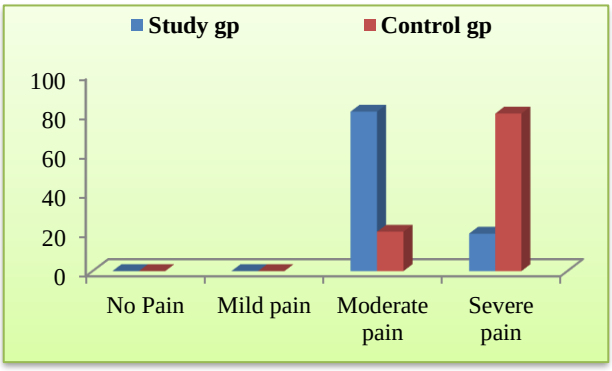

Figure 1: Pain at 48 hours.

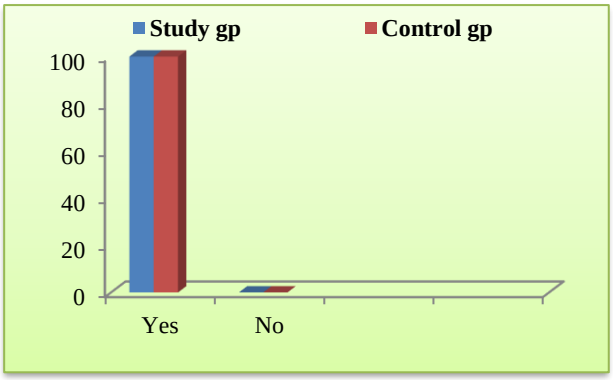

Figure 2: Analgesic required.

There is a statistical significance ($p<0.05$) in the degree of pain perception; more in the control group. Analgesic was given to both the group of patients.

Pain at 7th day

On 7th day, 96% of the patients had no pain, of which 88 (91.7%) belong to the study group compared to 8 (8.3%) of the control group. Among the 55 patients, who had mild pain 12 (21.8%) were in the study group and 43 (78.2%) were in the control group.

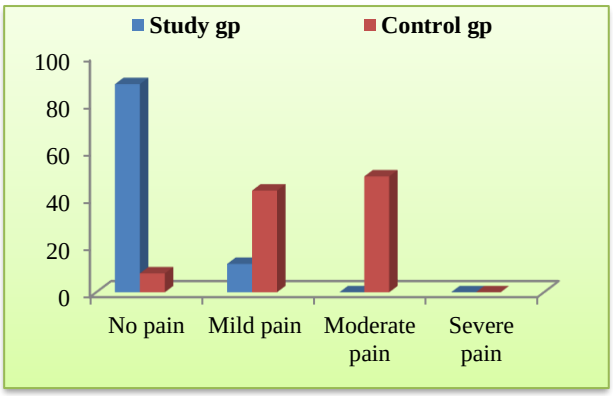

Figure 3: Pain at 7th day.

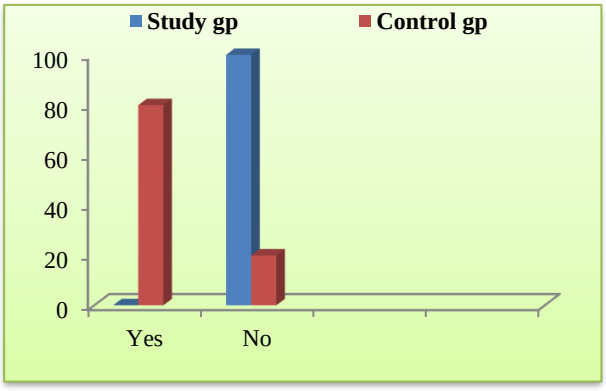

Figure 4: Analgesic required.

None of the patients in the study group had moderate pain whereas 49 patients in the control group had moderate pain. No patients in the study group required analgesics compared to 80% of the control group, who were in need of analgesics.

Pain at 15th day

53% of patients in the control group experienced mild pain while no one in the study group experienced even that mild pain. Similarly, no one in the study group required analgesic, while 17% of the patients in the control group required analgesic.

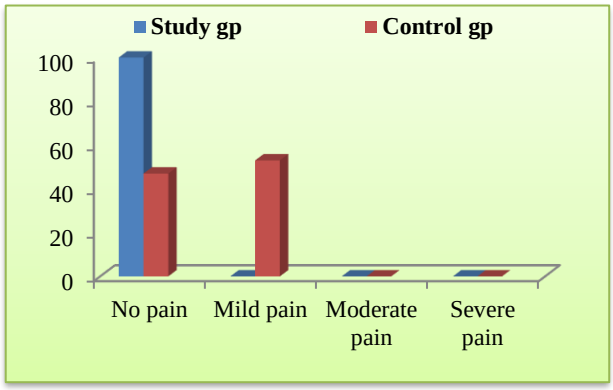

Figure 5: Pain at 15th day

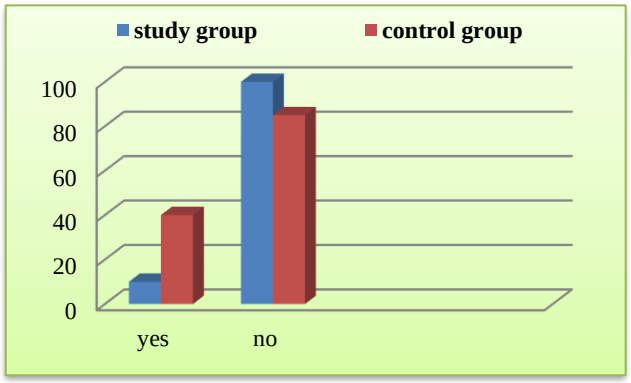

Figure 6: Analgesic required.

Pain at 6 weeks

Neither of the patients in both the groups experienced pain nor had retained suture material at the end of 6 weeks and hence required no suture removal.

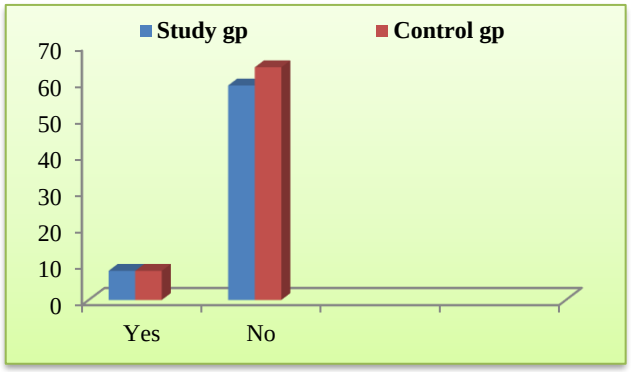

Figure 7: Dyspareunia at 3 months

Dyspareunia

33 patients of the study group and 28 of the control group had not resumed their sexual life postpartum. There was no statistically significant difference in the rate of dyspareunia between the two groups (12.4% vs. 10.7%).

DISCUSSION

Because of the high frequency of pain and discomfort felt by women after vaginal birth, identifying even a modest amount of improvement would be important.

Short term pain

In our present study, there was significant difference in pain perception at 48 hours postpartum. Analgesic was given to all the subjects. Only 19.2% of the study group experienced severe pain, compared to 80.8% of the control group. Pain started to improve from third day onwards. 49% in the control group while, none in the study group experienced moderate pain on day seven. On the 15th day, none of the women in the polyglactin group complained of pain, compared to 53 of the chromic catgut group who experienced mild pain, which was statistically significant.

There was no analgesic required in the study group while 80% of the control group was in need of analgesics. Women in the polyglactin group reported significantly less pain (21.8% vs. 78.2%). Analgesic requirement was nil on the 15th day in the study group whereas 17% of women in the chromic catgut group still required analgesics. This is similar to the study conducted in 150 patients by Joseph K et al.[5] Fewer women in the polyglactin (Vicryl rapide) group experienced short term pain compared to chromic catgut group; the results are statistically insignificant (P>0.05). From 7th day onwards pain perception was lower in the polyglactin group in comparison with chromic catgut group and that was statistically significant. Analgesic requirement was low in the polyglactin group after the 7th day and was nil after the 30th day, while 18% of the women in the chromic catgut groups required analgesics even after the 30th day.

Masson et al studied the repair of 2000 episiotomies with polyglactin 910 (Vicryl rapide).

There was statistically significant difference in the short-term pain perception.[6] In the Ipswich childbirth study: A randomized comparison of polygalctin 910 with chromic catgut for postpartum perineal repair in 1780 women between 1992 and 1994 showed that significantly fewer women in the polyglactin 910 reported pain at 48 hours (59% vs. 67%).[7]

Shah PK et al studied polyglactin 910 with chromic catgut for postpartum episiotomy repair in 226 women. Significantly fewer women of the chromic catgut group reported pain at 48 hours (55.1% vs. 61.1%).[8]

Guideline no. 23 of the Royal College of Obstetricians and gynecologists showed that the absorbable synthetic material for repair of perineal trauma is associated with less short term pain.[3] Greenberg JA et al in their study in 1361 patients, Fast-absorbing polyglactin in 459 and chromic catgut in 449 patients were used for perineal repair. At 24-48hrs, subjects in the fast-absorbing polyglactin group showed statistically significant reduction in uterine cramping pain (25% vs. 34%).[9]

Kettle C and Johanson RB reviewed eight randomized trials from the Cochrane Pregnancy and Childbirth Group trails register. Polyglactin group was associated with less pain in first three days compared to catgut group.[2]

Long term pain (6 weeks)

Both the group of patients were comfortable without pain at 6 weeks. None of them required analgesics. Similar findings were observed by Kurien Joseph et al on the 42nd day (100% in polyglactin group vs. 98% in catgut group).[5]

Nature of wound at 6 weeks

Our study showed a higher incidence of wound dehiscence in the control group compared to the study group (15% vs. 0%). There is a statistical significance with p <0.05. Joseph K et al in their study showed no significant difference in wound healing in the three groups.[5]

Cochrane database meta-analysis review by Kettle et al showed more women in the chromic catgut group to have wound dehiscence and required re-suturing than those in the polyglactin and polyglactin (Vicryl rapide) groups.[10] Present study showed statistically significant difference with the use of rapidly absorbing polyglactin in terms of pain relief, analgesic required and wound healing.

Residual suture at 6 weeks

Our study showed no residual suture material in either group at the end of 6 weeks. The suture material in the polyglactin (Vicryl rapide) group was completely absorbed but visible sutures in 28% of polyglactin and 18% of chromic catgut group in the Joseph K et al study.[5] Of the polyglactin group, 12% needed suture removal in the Mackrodt et al study.[7] Shah PK et al, in their study reported that more women in the polyglactin 910 group required suture removal than chromic catgut (12% vs. 7%).[8] Similar finding like our study was found in the Greenberg JA et al.[9] There was no difference in residual suture for fast absorbing polyglactin 910 and chromic catgut. Kettle C et al showed that less suture removal was done with the more rapidly absorbed polyglactin than with standard polyglactin (3% vs. 13%).[10] Present study shows no statistically significant difference between the rapidly absorbed polyglactin and chromic catgut in terms of the need for suture removal.

Dyspareunia at 3 months

No statistically significant difference between the two groups was noted in our study. This is similar to the Cochrane systematic review of eight randomized controlled trials by Kettle C and Johanson RB involving 3642 women.[2] There was no clear difference in terms of long term pain and dyspareunia in the absorbable synthetic when compared to catgut suture material. Mackrodt C et al and Shah PK et al also showed no clear difference between the polyglactin 910 and chromic catgut group in terms of dyspareunia or failure to resume pain free intercourse.[7,8] McElhinney BR et al in their study showed a statistically significant difference (t-value 2.440). at twelve weeks only 5% of polyglactin (Vicryl rapide) patients complained of dyspareunia when compared to 20% of the standard polyglactin group.[11] In present study there is no significant difference in the rate of dyspareunia with the use of rapidly absorbing polyglactin and chromic catgut.

CONCLUSION

There was significant reduction in the short-term pain. There was significant reduction in the need for analgesia The incidence of wound dehiscence was markedly reduced and hence the need for resuturing. There was no need for suture removal. Present study shows the distinct advantage of polyglactin (rapidly absorbable) over chromic catgut, as far as subjective pain perception, analgesic requirement, wound dehiscence and re-suturing are concerned. Hence rapidly absorbable form of polyglactin may be considered in place of traditional chromic catgut for perineal repair in all government maternity units.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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